

**Amendments to the Specification**

The Applicant requests replacement of paragraph [0037] with the following amended paragraph:

[0037] The system 200 further includes a comparator 220 operable to receive measurement signals 182 and 192 from measurement probes 180 and 190, respectively, and to output, in response, a difference signal 227 corresponding to the difference between the measurement signals 182 and 192. In the particular embodiment shown, the comparator 220 includes first and second differential amplifiers 221 and 222, a phase meter 223, optional first and second DC converters 224 and 225, a third differential amplifier 226, and a difference meter 230. An input of each of the first and second differential amplifiers 221 and 222 are connected to nodes 165a and 165b, the other input connected to ground (ac and/or dc) potential.

The outputs of the first and second differential amplifiers are coupled to the phase meter 223 operable to detect a relative difference in the phase between output signals of the first and second differential amplifiers. Optional DC converters 224 and 225 convert the differential amplifier output signals to DC-formatted signals.

Exemplary embodiments of the DC converter circuit include: integrator circuits (such as resistor-capacitor circuits), analog-to-digital converters, root-mean-square voltage converters, averaging circuits, sample-and-hold circuits, digital sampling circuits, and the like. In embodiments in which the measurement signals 182 and 192 are DC-formatted, the DC converters can be omitted. The DC-formatted signals are then supplied to the third differential amplifier 226, which, in response, produces a difference signal 227. The difference signal 227 is input to the difference meter 230 which indicates the relative difference in the measurement signals 132 and 142.

Optionally, the system may include a correlator (~~not shown~~) 228 coupled to receive the difference signal and which stores (e.g., using a memory element 229) characteristics of the previously obtained difference signals, each of which has a known bio/chemical activity associated therewith. The characteristics of these stored difference signals (the difference signal's magnitude, phase, time rate of change, etc.) can then be compared against to the presently measured difference signal to determine bio/chemical activity in the presently measured sample. An output signal is provided which indicates the closest matching stored difference signal, that difference signal having a known bio/chemical activity associated therewith.